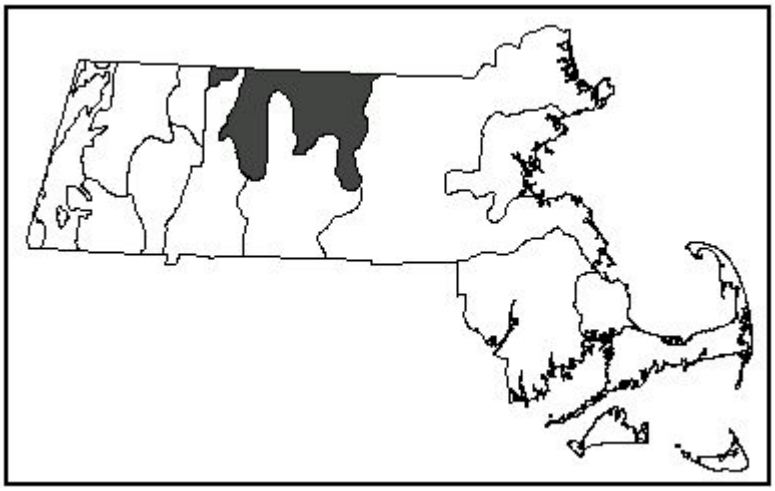
Community Name: **NORTHERN ATLANTIC WHITE CEDAR SWAMP**
Community ELCODE: CP1B1A3000
SRANK: S2



Concept: A variant of spruce-fir boreal swamps in which Atlantic white cedar is an associate in the tree canopy.

Environmental setting: Northern AWC swamps are restricted to basins at high elevations; the one described occurrence in Massachusetts occurs at an elevation of 1,110 feet and is currently the highest known elevation for Atlantic white cedar in the state. As with all AWC swamps, water-saturated peat overlies the mineral sediments, and standing water generally occurs for half of the growing season or longer. The water and soil are nutrient-poor, and particularly low in nitrogen and phosphorus. There is a high iron content in the soil; the iron, called "bog iron," was mined in the early days of manufacturing. Soil pH is acidic (3.1-5.5) and leaf litter decomposition is slow.

Vegetation Description: Northern conifers, such as black and red spruce (*Picea mariana* and *P. rubens*), and balsam fir (*Abies balsamea*) dominate the overstory, and Atlantic white cedar (*Chamaecyparis thyoides*) occurs as an associate. Shrubs and herbs are similar to those found in high-elevation Inland AWC swamps, especially mountain holly (*Nemopanthus mucronatus*), creeping snowberry (*Gaultheria procumbens*), and bunchberry (*Cornus canadensis*). Labrador tea (*Ledum groenlandicum*) and rhodora (*Rhododendron canadense*) are also common.

Associations: Motzkin (1991) described six AWC associations in Massachusetts. Northern AWC swamps are equivalent to his boreal evergreen swamp forest type.

Habitat values for Associated Fauna: Northern AWC swamps can function as vernal pool habitat if water remains standing for 2-3 months and they lack fish; these areas provide important amphibian breeding habitat.

Associated rare plants:

NONE KNOWN

Associated rare animals:

AMBYSTOMA JEFFERSONIANUM	JEFFERSON SALAMANDER	SC
HEMIDACTYLIUM SCUTATUM	FOUR-TOED SALAMANDER	SC

Examples with Public Access: Westminster State Forest.

From: Swain, P.C. & J.B. Kearsley. 2001. Classification of the Natural Communities of Massachusetts. Version 1.3. Natural Heritage & Endangered Species Program, Division of Fisheries & Wildlife. Westborough, MA.

Threats: The two greatest threats to AWC swamps are land clearing for agricultural, commercial and residential development, and interference of normal hydrological functioning as a result of development. Atlantic white cedar has been cut extensively for posts and shingles for over three centuries. In an extensive statewide vegetation inventory funded by NHESP in 1990, no uncut stands were found, but several sites contained cedars that were 100-200 years old. Selective cutting is detrimental to the persistence of AWC swamps, because hardwoods, such as red maple, out-compete and replace AWC. Any alterations to the natural hydroperiod of AWC swamps threatens their persistence.

Management needs: Due to the limited distribution of AWC swamps, it is recommended that no clearing or filling of these wetlands be allowed. Atlantic white cedar will regenerate best following catastrophic disturbance events such as hurricanes and fires. Data suggest that in the absence of disturbance, red maple and shrubs increase in abundance at the expense of Atlantic white cedar. Fire suppression negatively threatens the long-term persistence of AWC swamps, and controlled burning practices may be an appropriate restoration tool in many areas. Controlled burning should be accompanied by small-patch clearcuts to be most effective. By clear-cutting small patches, generally 20 m x 20 m, and removing the slash and competing vegetation, pure, even-aged stands of Atlantic white cedar are able to regenerate. AWC swamps require a natural cycle of wet and dry periods for their survival and reproduction. Standing water for much of the year is unfavorable for both seed germination and seedling survival, and young seedlings are killed by both drowning and drought. It is recommended that any alterations in water levels be avoided, this includes development and road construction in uplands surrounding AWC swamps which can alter water levels. Where cedar wetlands are associated with river systems, it is important to maintain normal hydrologic regime of the river.

Synonyms

USNVC/TNC: Chamaecyparis thyoides-Picea rubens/Gaylussacia baccata/Gaultheria hispidula forest [CEGL006363].

MA [old name]: NNE Acidic seepage swamp, Atlantic white cedar association [CP3B2B1000].

ME: may be included within the Atlantic white cedar swamp community.

VT: Not described.

NH: may be included within Coniferous basin swamp.

NY: Not described.

CT: Not described.

RI: Not described.

Golet & Larson, 1974: Evergreen wooded swamp (WS-2).

Other: Motzkin, 1991. Mixed hemlock-AWC-red maple-yellow birch type and Spruce-hemlock-AWC type.

Author: J. Kearsley **Date:** 7/21/99

From: Swain, P.C. & J.B. Kearsley. 2001. Classification of the Natural Communities of Massachusetts. Version 1.3. Natural Heritage & Endangered Species Program, Division of Fisheries & Wildlife. Westborough, MA.